

**U.S. Department of Commerce
National Fire Prevention
and Control Administration**

**Second Annual Report of
The Secretary of Commerce**

C 58.1:1975



Elliot L. Richardson
Secretary of Commerce

Howard D. Tipton
Administrator
National Fire Prevention and Control Administration

David A. Lucht
Deputy Administrator
National Fire Prevention and Control Administration



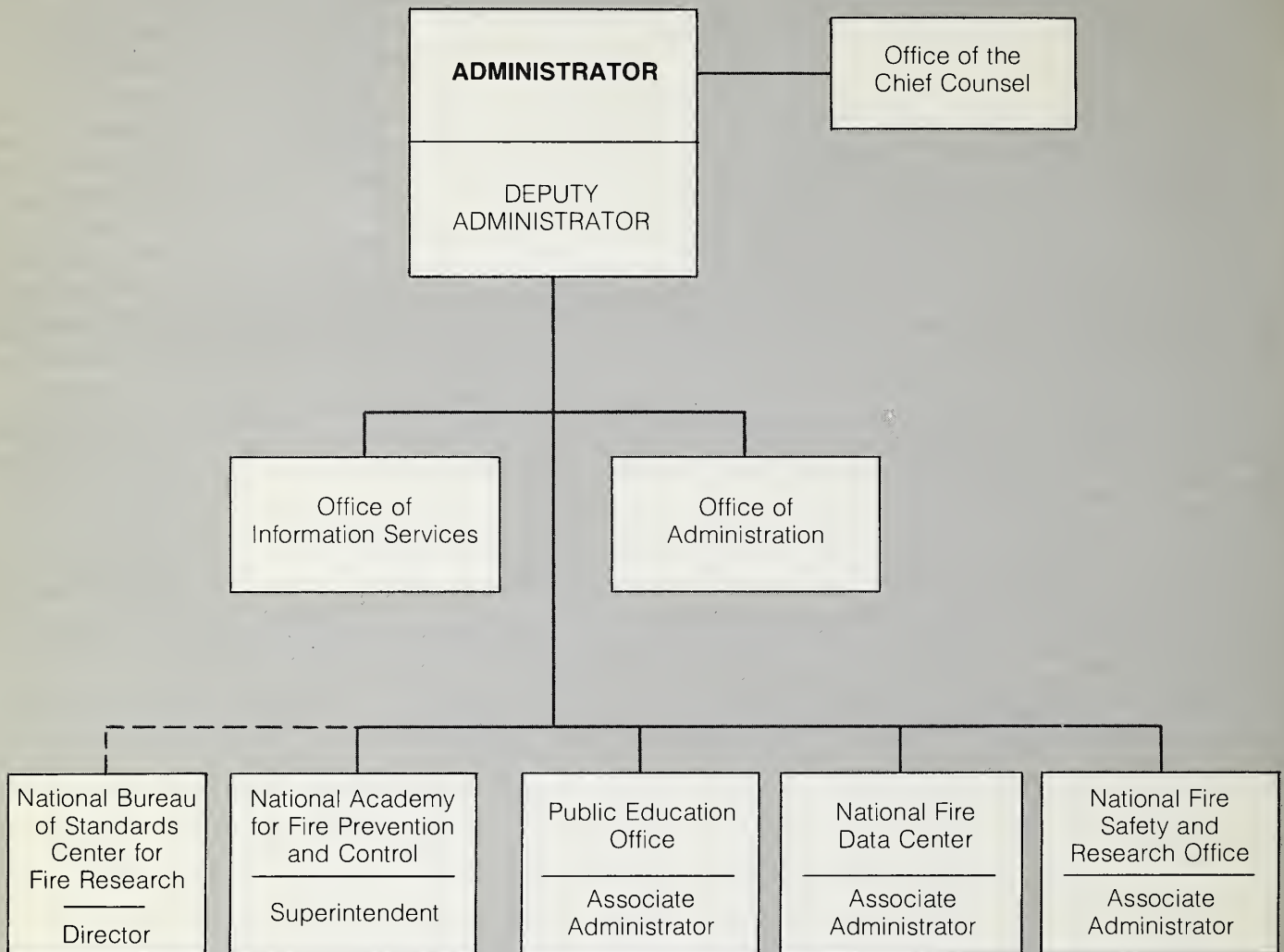
**The Second
Annual Report Of
The Secretary Of
Commerce
On Implementation Of
The Federal
Fire Prevention
And Control
Act Of 1974**

Public Law 93-498
Report for Calendar Year 1975

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**FIGURE 1. U.S. DEPARTMENT OF COMMERCE
National Fire Prevention and Control Administration**



Foreword

This Report is submitted to the Congress and the President of the United States in accordance with the requirements of Section 16 of the Federal Fire Prevention and Control Act of 1974. The Act directs that the Report shall include, but need not be limited to, an appraisal of human and economic losses due to fire; a survey and summary of the research and technology program undertaken pursuant to the Act; a summary of the activities of the National Academy for Fire Prevention and Control; the activities undertaken to assist the Nation's fire services; progress in public education programs; an analysis of the extent and participation in preparing and submitting fire safety effectiveness statements; a summary of outstanding problems confronting the administration of the Act in the order of their priority; recommendations for additional legislation as being necessary and appropriate; and a summary of reviews, evaluations and suggested improvements in Federal, state, local and private fire prevention and building codes and fire services.

The Federal Fire Prevention and Control Act of 1974 was signed into law by President Ford on October 29, 1974; the First Annual Report covered the 63-day period between October 29 and December 31, 1974. This Second Annual Report covers the first full year of operation: January 1, 1975, through December 31, 1975. This includes the second half of Fiscal Year 1975 and the first half of Fiscal Year 1976.

During the first 63 days of its life in calendar year 1974 and during approximately the first half of calendar year 1975, the NFPCA operated under an Acting Administrator, Dr. Joseph E. Clark. During this in-

ital period, efforts were directed primarily toward the establishment of the National Fire Prevention and Control Administration as a functional operating unit of the Department of Commerce and recruitment of a few mid-level personnel.

With the advice and consent of the United States Senate, President Gerald R. Ford appointed Howard D. Tipton of California as Administrator, and David A. Lucht of Ohio as Deputy Administrator, on August 5, 1975, and June 27, 1975, respectively. Thus, at mid-year, the first operating executives were in place within the National Fire Prevention and Control Administration. During subsequent months emphasis was placed on recruiting and hiring of top management personnel and professional and support staff, consultation with the fire services and others regarding priority needs, identification of priority initiatives, and the development of a comprehensive Five-Year Plan for the National Fire Administration.

In addition, during this period extensive time and energy were devoted to the development of short-term and long-term budget information, consideration of site and facility needs for the NFPCA in general and the National Fire Academy in particular.

Organizational Structure

Organizationally, the NFPCA has been divided into four operating units:

- National Academy for Fire Prevention and Control
- Public Education Office
- National Fire Data Center
- National Fire Safety and
- Research Office

In addition, the Office of the

Administrator is serviced by an Office of Chief Counsel, an Office of Administration and an Office of Information Services. The organizational chart is shown in Figure 1. Also, included with this Report (Appendix A) is Department Organization Order 25-6B which describes the functions of each operating unit.

The National Bureau of Standards' Center for Fire Research is under the administrative jurisdiction of the Assistant Secretary for Science and Technology. Through an agreement between the Assistant Secretary and the NFPCA Administrator and by virtue of regular interactions between program staff, the Center's programs are closely coordinated and interlocked with those of NFPCA.

The remainder of this Report responds to the Annual Report Requirements of Section 16 of the Act and includes other information of significance.

Resource Allocation

For this first full year of operation, resource allocation can be conveniently divided into two parts. One part is the assumption of responsibility for previously ongoing programs and the other part is for new initiatives resulting from the Act. The previously ongoing programs are principally constituted of programs of the National Bureau of Standards' Center for Fire Research and the National Science Foundation RANN Fire Program. Of the financial resources obligated during Fiscal Years 1975 and 1976, \$5,325,000 is assignable to the National Bureau of Standards' Center for Fire Research and \$2.3 million is assignable to the continuation of university-type fire research grants initiated by the National Science Foundation. The approximate distribution of financial

FIGURE 2. FINANCIAL OBLIGATIONS

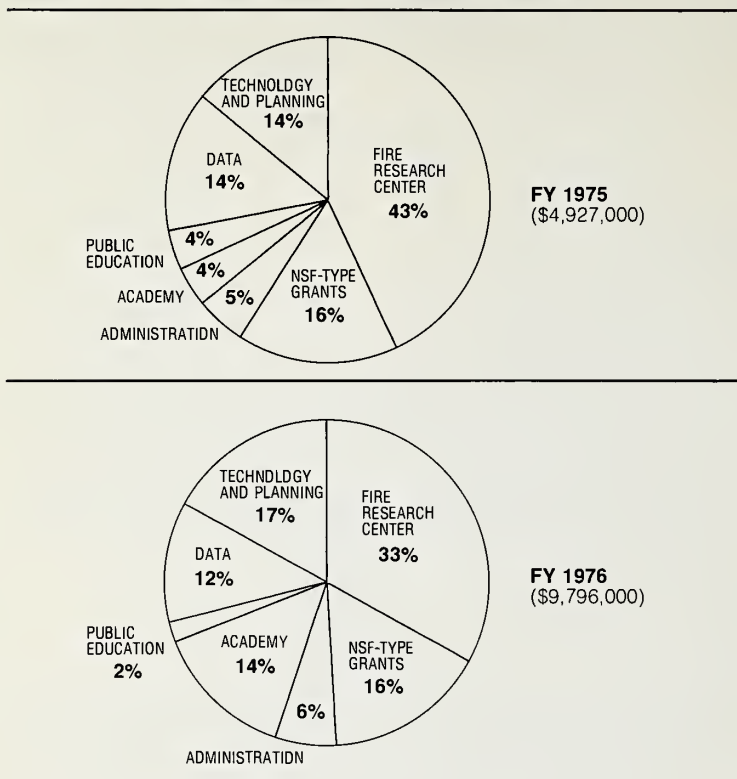
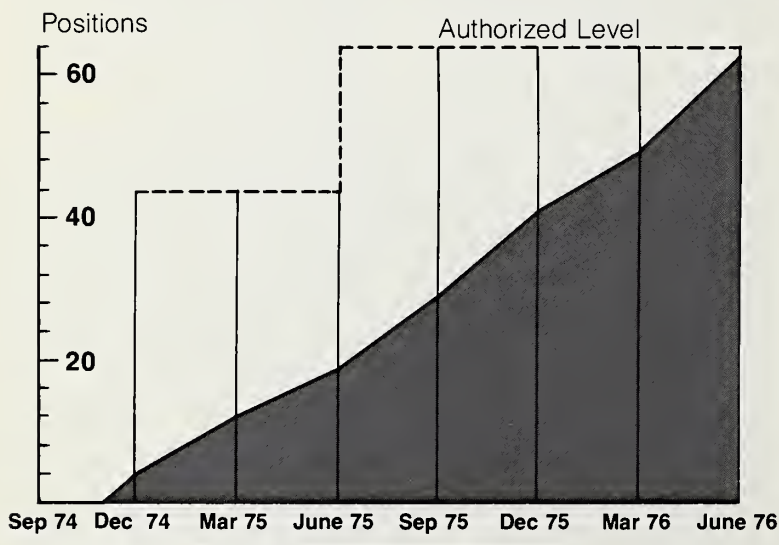


FIGURE 3.
FULL-TIME PERMANENT EMPLOYMENT
(Exclusive of Fire Research Center)

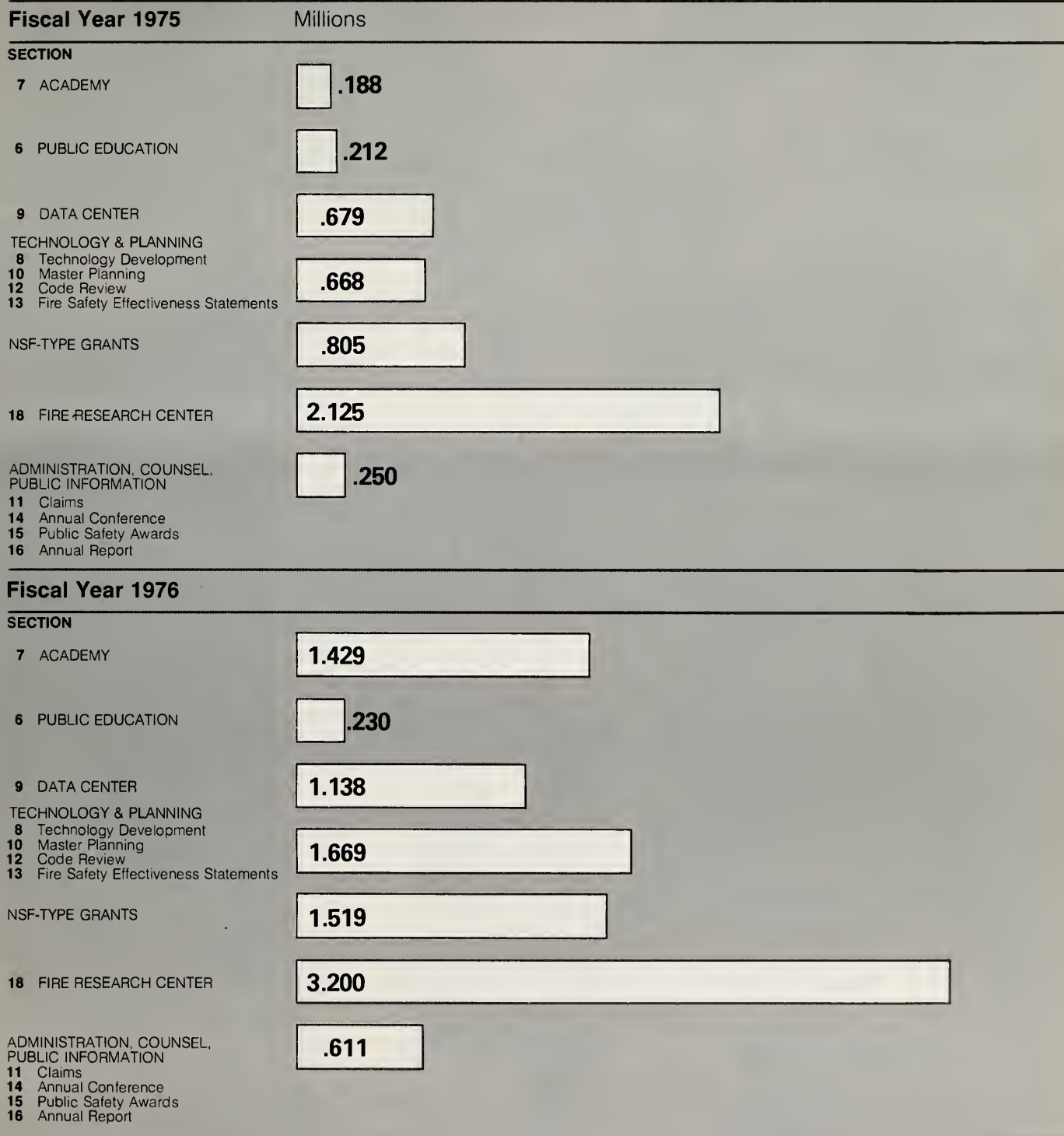


resources is shown in Figures 2 and 4.

Regarding personnel resources, intensive recruitment and hiring did not begin until the appointment of the Administrator and his Deputy. Because of this late start, extensive use was made of temporary personnel and assignments from other agencies during calendar year 1975. For the same reason and due to the NFPCA's desire to interact closely with state and local officials, use was also made of the Intergovernmental Personnel Act for the purpose of obtaining high-caliber expertise on a short-term basis. During calendar year 1975, approximately 50 individuals were utilized under the Intergovernmental Personnel Act, or as temporary or other agency assignment personnel. Figure 3 shows the growth of full-time, permanent personnel during the history of the National Fire Prevention and Control Administration. The authorized strength of personnel was 44 for Fiscal Year 1975 and 63 for 1976. It should also be pointed out that a significant amount of work was done "out-of-house" through contracts and grants, which represented about 80 percent of total expenditures.

Elliot L. Richardson
Elliot L. Richardson
 Secretary of Commerce
 June 30, 1976

FIGURE 4. FINANCIAL RESOURCES OBLIGATED ACCORDING TO ACT SECTIONS





Appraisal of Human and Economic Losses

Reliable data is essential to measure and evaluate the national fire picture, identify target problems, develop solutions to problems, and to measure the impact of fire prevention and control efforts. The National Fire Data Center of the National Fire Protection and Control Administration is charged with collecting, analyzing and disseminating data to help support the needs of state and local governments, fire services, the NFPCA and other Government agencies, and others involved in fire activities.

Basic fire data continues to be available from existing data gathering and analysis organizations. According to figures from the National Fire Protection Association, a Boston-based non-profit organization, in calendar year 1975, fires in the United States claimed nearly 12,000 lives. More than 300,000 people were injured—40,000 of those seriously. The American Insurance Association reported that for the first time property loss from fire topped the \$4 billion mark, reaching \$4.4 billion. Annual economic cost of fires in the United States was estimated to be climbing toward \$12 billion.

But more data is needed. In order to obtain an estimate of fire losses not reported to fire departments and to provide another independent source of data on the national fire problem, a National Household Fire Survey was conducted in 1974 by Commerce Department's Bureau of the Census, co-sponsored by the National Bureau of Standards and the Consumer Product Safety Commission. The highlights of the survey were analyzed and published in 1975 by the National Fire Data Center. Of the 33,000 households surveyed, 2,463 fires were recorded. This

extrapolates to an estimated 5.6 million fires nationwide per year. Nine out of ten of these household fires were small and were not reported to the local fire department.

Data from several sources, including some held by the National Fire Data Center, were used in a joint study conducted by the National Fire Protection Association and the Center for Fire Research to determine an approximation of the events which lead to fire deaths in the United States. Analysis of the data indicated that 72 percent of fire deaths occur in residential occupancies. The highest percentage of fire deaths (27 percent) resulted from the chain of events marked by smoking materials igniting home furnishings in residences. This study reinforces past





findings that one of the most outstanding fire problems in America is found in homes, whether they be single-unit dwellings or apartments.

During calendar year 1975, the major emphasis of the Data Center was concentrated on the development of a standardized reporting system that can be used at the local, state and national level to determine fire causes and extent of fire losses, both economic and personal.

The basic design of the National Fire Incident Reporting System was completed in 1975. This system constitutes a partnership between the NFPCA and state and local governments. Individual fire departments will record the facts of fire incidents using a national standard coding system. This coding system was developed by the National Fire Protection Association Committee on Fire Reporting, NFPA Standard No. 901 "Uniform Coding For Fire Protection."

Once this uniform fire incident data is recorded by the local fire department, it will be sent to the state. The state government will compile and

analyze the data for its own purposes and forward computer tapes of standard information to the National Fire Data Center. At the Center, the data will be combined with data from other sources (such as the Bureau of the Census) to enable the analytical work required on the national level. Subsequently, feedback reports will be sent to the state and local levels.

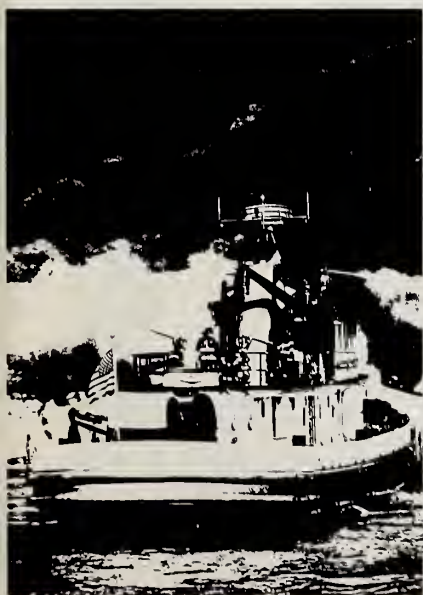
Naturally, the development of this system becomes a relatively slow and arduous task. Today most states do not have a system which is compatible with the national standard. This means that state governments must first develop or change their standards and procedures and each fire department must be trained and equipped to start on a new procedure. Through a contract with the National Fire Protection Association, the NFPCA has developed materials and training programs to meet this need. The agency will provide photoready copy of fire incident and casualty reporting forms, coding manuals and instructor guides, as well as visual training aids. NFPCA instructional staff will assist in training the state instructors on the system. In addition, a computer software package has been developed for state-level processing of the collected data. This software package is being made available to state governments on a no-cost basis, and technical assistance is being provided to help in installing and starting up the system.

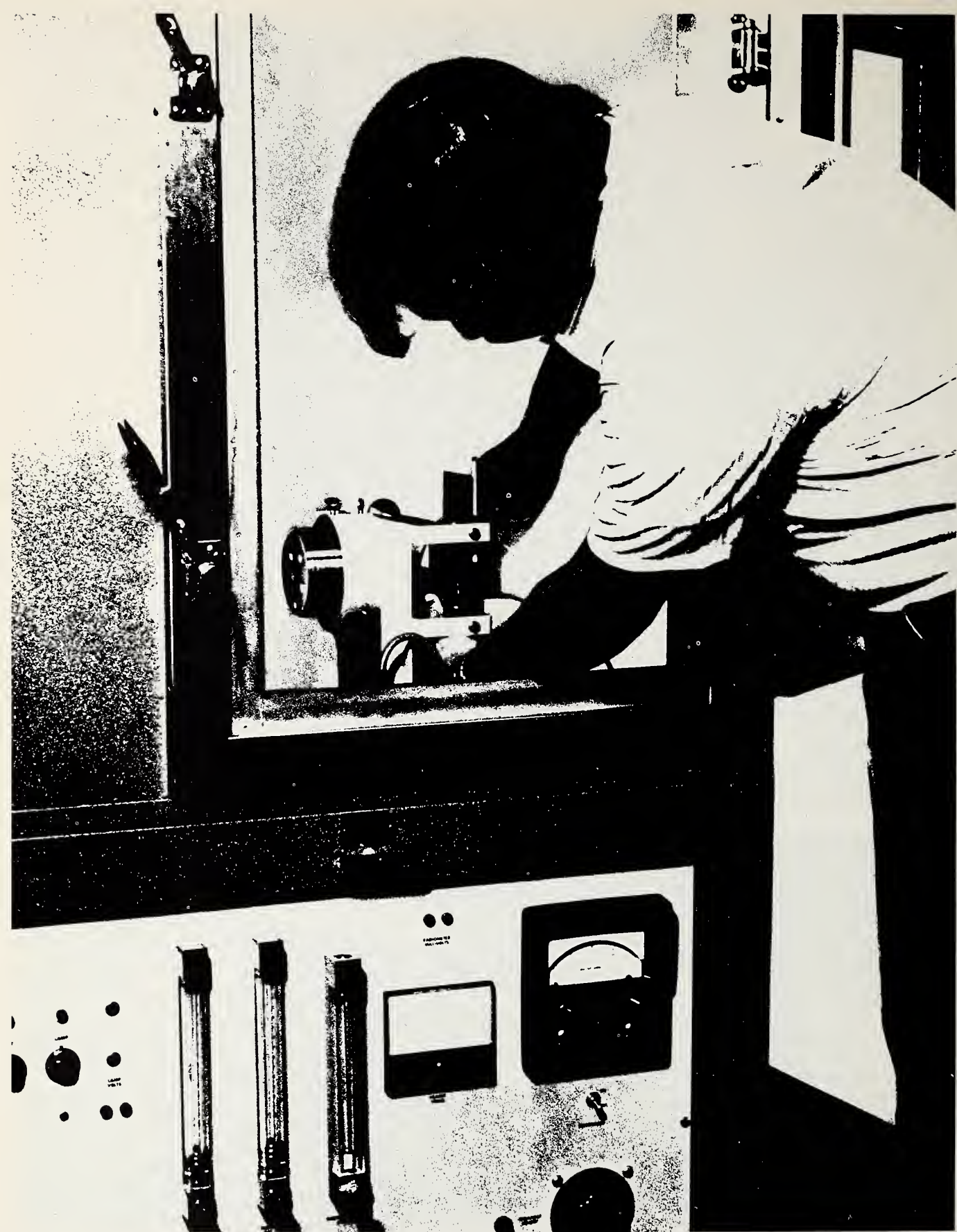
A study by the Research Triangle Institute in North Carolina identified 19 specific states as representative of a statistically valid sample of the United States fire picture. The Data Center is concentrating on incorporating these specific 19 states into the Fire Incident Reporting System in order that proper and statistically valid data can be compiled to reliably

estimate the national fire picture. It is anticipated that some 12 states will be incorporated into the system by the end of Fiscal Year 1977. In addition to statistical fire data, the Data Center also developed a National Fire Reference Service for the purpose of collecting and disseminating non-statistical fire-related information.

Such non-statistical information might include data on various types of fire prevention and control activities in the Nation, technical information related to fire-safe building construction and fire hazard properties of materials, information on fire prevention and control laws, systems, methods, techniques and administrative structures, and technical information on fire research results.

Studies were undertaken to determine what the information needs are, who the potential users are, where their needs are currently being met and where their needs are not being met. The Reference Service will be aimed at filling voids with respect to subject matter, quality and timeliness.





Two distinct areas of fire research and technology programs were recognized by Public Law 93-498. These two areas generally follow the distinction between fundamental and applied research and technology, and are carried out in separate organizational entities. The more fundamental work is carried out by the Center for Fire Research at the National Bureau of Standards and the more applied work is carried out by the National Fire Safety and Research Office in the NFPCA. Considerable interaction exists between these two groups to assure programmatic coordination and mutually supportive programs.

CENTER FOR FIRE RESEARCH

The Center for Fire Research within the Commerce Department's National Bureau of Standards focuses primarily on one aspect of the fire problem: developing through research the basic technical knowledge of fire and its effects which are necessary to reduce fire losses.

The Center's research findings are implemented principally in new standards, design specifications, recommended practices, and input to nationally recognized standards-making bodies. The Center provides the technical basis for these and it prepares, submits and defends recommendations to appropriate authorities. These authorities include Federal agencies having regulatory powers in such matters, model code groups, state and local code officials, voluntary standards bodies such as the American Society for Testing and Materials (ASTM) and the National Fire Protection Association (NFPA). The relevant activities of these groups represent the delivery system of the Center.

The Act charges the Center for Fire Research with developing an understanding of fundamental processes of fire, including its physics and chemistry; its behavior, spread and growth in buildings; the fire hazards arising from transportation of combustible fluids and materials; and design concepts for increased fire safety in the built environment. The Congress also authorized the Center to carry out investigations into the biological, physiological and psychological factors affecting the victims of fire. In particular, the biological and physiological effects of toxic substances on fire victims, and the psychological and motivational characteristics induced either by fire stress or fire trauma are to be systematically studied. Identifying priorities for the Center's programs as well as disseminating its results to the user community, are a joint responsibility of NFPCA and the Center.

One of the major emphases of the 1975 year was to develop a research plan in response to the new charter provided by the Act. This plan analyzes fires in terms of common characteristics, shows how research may be aimed at reducing fire losses, and sets priorities for action. What follows is a description of how the plan was developed, the strategy the Center has used in 1975 to set the plan in action, and some major accomplishments.

Each of the millions of fire incidents which occur yearly is the outcome of a fateful chain of events. Some of these events are the result of the circumstances surrounding the fire, others are the consequences of human action. However, if the sequence of events could be broken, if one of the links in the chain could be removed, the end result, unwanted fire, would not

occur. In developing a plan to cut the losses due to unwanted fire, it is important to relate the planned research to the most probable fire situations so as to increase the likelihood of preventing such fires.

Intervention Strategies

It is customary to consider fire intervention in four categories, three addressing the fire and one addressing the people:

- Ignition Control
- Spread and Growth Control
- Detection/Suppression
- Escape, Refuge, etc.

Ignition Control

It is well accepted that the best way to control fire is to prevent fire from starting. Whether or not a material will ignite or burn is a function of the nature of the material itself and the heat applied to it. Often, fires can be prevented by requiring the use of materials with improved ignition resistance. As an example, Congress recognized this in a variety of amendments to the Flammable Fabrics Act of 1953, all of which are now administered by the Consumer Product Safety Commission (CPSC). The Center performs the technical work on which these mandatory flammability standards are based. Another example of ignition prevention would be standards for a "self-extinguishing cigarette."

Although progress has been made in the area of flammable fabrics, much remains to be done. Present regulations do not yet cover most home furnishings or general apparel—items which figure very heavily in current patterns of fire loss. But 1975 was an important year which marked the development of standards in these two vital areas.

A flammability standard for upholstered furniture is one

way of substantially reducing the incidence of fire deaths due to smoldering combustion of furniture. This kind of fire alone accounts for approximately 13 percent of fire deaths. Center researchers have developed two tests which will form the base of the proposed upholstered furniture standard. The first is a cigarette ignition test for classifying upholstery; the second test determines the resistance of an assembled piece of upholstered furniture to a cigarette ignition.

An evaluation of these tests at 55 different laboratories shows that the tests are repeatable and reproducible. These results and recommendations were included in a report which was submitted to the Consumer Product Safety Commission. It is expected that the Commissioners of the Consumer Product Safety Commission will act on this matter in the near future.

The Center, during this same period, developed test procedures and performance criteria to form the basis of a general apparel flammability standard. Tests were developed for classifying the relative potential for burns posed by various fabrics used for clothing. Since data show that loose garments are most likely to cause more extensive burn injuries than tight fitting ones, in the proposed standard the safest fabrics would be required in the most hazardous garment class. Less hazardous garments would be matched with fabrics passing less stringent fire safety criteria. The first draft of the standard was forwarded to Consumer Product Safety Commission at year's end.

Arson, too, is considered part of the ignition control strategy. Specific provisions in the Federal Fire Prevention and Control Act of 1974 direct the Center to conduct research into

the "psychological and motivational characteristics of persons who engage in arson, and the prediction and cure of such behavior." The Center for Fire Research has initiated an exploratory study to define the problem and appropriate Center responses. It is intended that improved technical support of enforcement officials would increase the number of convictions for arson which, in turn, will serve as an effective deterrent.

Control of Fire Growth and Spread

It is impossible to eliminate all or even most ignition incidents. Therefore, strategies designed to control fire spread, given a sustained ignition, must be pressed. If spread and growth can be controlled, the potential for damage is reduced and the chances for victims to escape are improved.

In order to control a fire, we must first focus on how the fire develops and grows within a single room. Researchers call this the "compartment or room fire problem." Work is underway at the Center to combine materials properties, such as heat release and flame spread parameters of building materials with geometric and weight factors, into a comprehensive, mathematical model of fire growth in a compartment. As the model is refined, it will become possible to predict how materials will interact in different fire environments.

Part of the Center's effort in controlling the growth of fire is the Center's work on controlling the movement of smoke and toxic gases. There are a number of devices and systems that can be used to limit the damage and danger of fires in structures. Since smoke is generally a greater danger than fire in very large buildings, the Center's program is largely directed at

smoke control. The Center is developing computer-simulated programs for studying smoke movement in buildings and is developing design criteria and guides for smoke control in buildings.

Detection and Suppression

The third strategy for reducing fire losses is detection and suppression once the fire occurs. The Center is currently conducting projects in both of these areas.

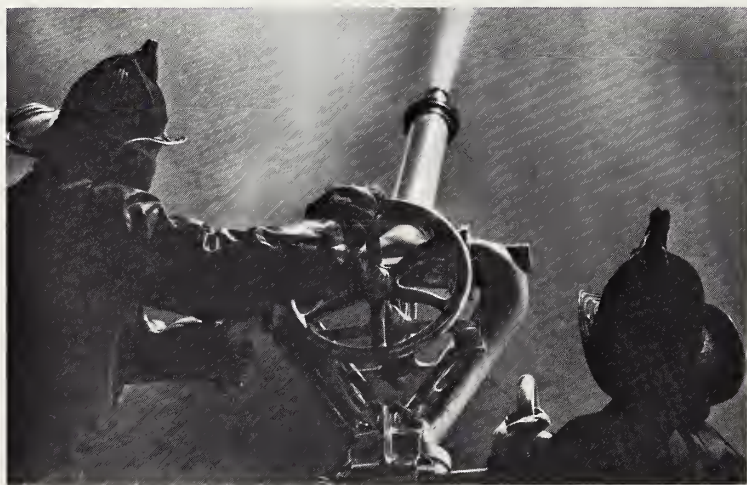
Smoke detectors can detect the presence of fire or smoke and alert occupants who might otherwise perish. Growing public awareness of the availability of smoke detectors, and the adoption of laws by states and municipalities requiring the installation of such devices in all newly constructed homes, is creating a rapidly expanding market. Manufacturers of smoke detectors are gearing up for an expansion that is just beginning and could last for years. They see the estimated 48.2 million single-family homes, 21 million apartments and the 3.7 million mobile homes as providing a market that will approach about \$87 million in 1976, more than doubling the sales of a year ago. Sales are expected to near the \$200 million mark by 1980.*

Despite the rapid growth in the market, not all detectors are effective; some have serious shortcomings. Fire officials are cautioning consumers to purchase only those devices which meet the standard of a nationally recognized testing laboratory.

In 1975, Underwriters' Laboratories, the largest of these national testing labs, adopted a new detector standard, UL Standard No. 217,

*National Fire and Security Report, Col. 2, No. 9, May 3, 1976.





based almost exclusively on performance criteria developed at the Center. The direct application can be seen in the Center's work in reducing fire losses in the United States. In addition, in the past year the results of studies for smoke detectors in mobile homes formed the basis for recommended changes to the national standard on mobile homes (NFPA No. 501B).

Much remains to be learned in this field before we can be assured that only dependable, life-saving detectors enter the marketplace. The ideal detector will ultimately be able to distinguish the difference between friendly smoke and unfriendly, dangerous smoke. The detector project which is now conducted at the Center is aimed toward designing tests which can make this distinction.

Paralleling the development of effective detectors will be the encouragement of a new generation of sprinklers. Present sprinkler systems, although effective in controlling unwanted fires, are often too expensive for homes and apartments.

Sprinklers must be tailor-made to residences. Lower cost systems for the home can be developed, provided that basic information is available which is necessary for design and development of better systems. This is the Center's job. NFPCA is stimulating industry to build and market the improved systems, and the two organizations are working with code officials to make certain that the new technology will be acceptable to the authorities responsible for fire safety.

People Protection

The protection of people from the effects of fire is a matter of alerting them and making sure they will use areas of refuge or escape routes. Thus, it is a design problem plus an

educational exercise.

The data obtained in all the programs at the Center must be integrated into existing codes and will involve refinement of an integrated concept of safety vs. risk for all structures. What is needed is an organized body of information that will permit architects to use a rational approach to designing fire safety into buildings. As part of this effort, the Center has conducted a program which has gathered data on human behavior during fires. It is anticipated that by juxtaposing the human behavior with fire development in numerous case studies, patterns can be observed. The patterns can then be used to make rational decisions on how buildings can be designed to insure greater fire safety.

Another effort to provide information for safer design of buildings was in the form of an NBS conference on emergency alarm and communication systems. The conference participants drafted a report on the state-of-the-art of emergency communications which will serve as a jumping off point for further work in this area.

Toxic gases produced by burning materials create a severe hazard to life and one that is not obvious until the fire occurs. It is estimated that more than 80 percent of fire fatalities are caused by toxic combustion products. The Center initiated a new, separate, comprehensive program to study the production and effects of smoke and gases from fire. Under the program, a study will be undertaken as to what gases are produced by what materials and test methods will be developed which can be used to rank materials by the toxicity of the combustion products they produce in fires.

There are two problems. The first, and in some ways the

simpler, is that of combustion products which are extraordinarily toxic (supertoxins): that is, they are many times more poisonous than those from wood. The nature of these gases is not predictable from knowledge of the material itself since the toxins may form only during combustion. One well documented case of supertoxin formation has already been developed (University of Utah), and the need for a standard method of test is apparent. Work began on this late in 1975. Manufacturers of materials are especially anxious for such a test so that they may avoid introducing problem products to the market place. The second problem is that of differentiating among the many products on the market for which the toxicity differs by less than, say, a factor of 10. There are many charges and allegations, but not many facts. Before standards can be developed, considerable basic research must be done. The Center has made a beginning in 1975.

NATIONAL FIRE SAFETY AND RESEARCH OFFICE

Technology Development:

Needed improvements have been identified with regard to the delivery of fire protection to the community. This includes the consideration of improvements in the firefighters' protective clothing, the equipment he uses, the effectiveness and efficiency of the fire services, and improvements in fire safety for buildings. A series of projects was undertaken to initiate this program.

In order to more clearly understand the firefighters' work environment so we can improve the life safety systems requirements, a grant was awarded to Harvard University School of Public Health in cooperation with the Boston Fire Department. They are making thermal

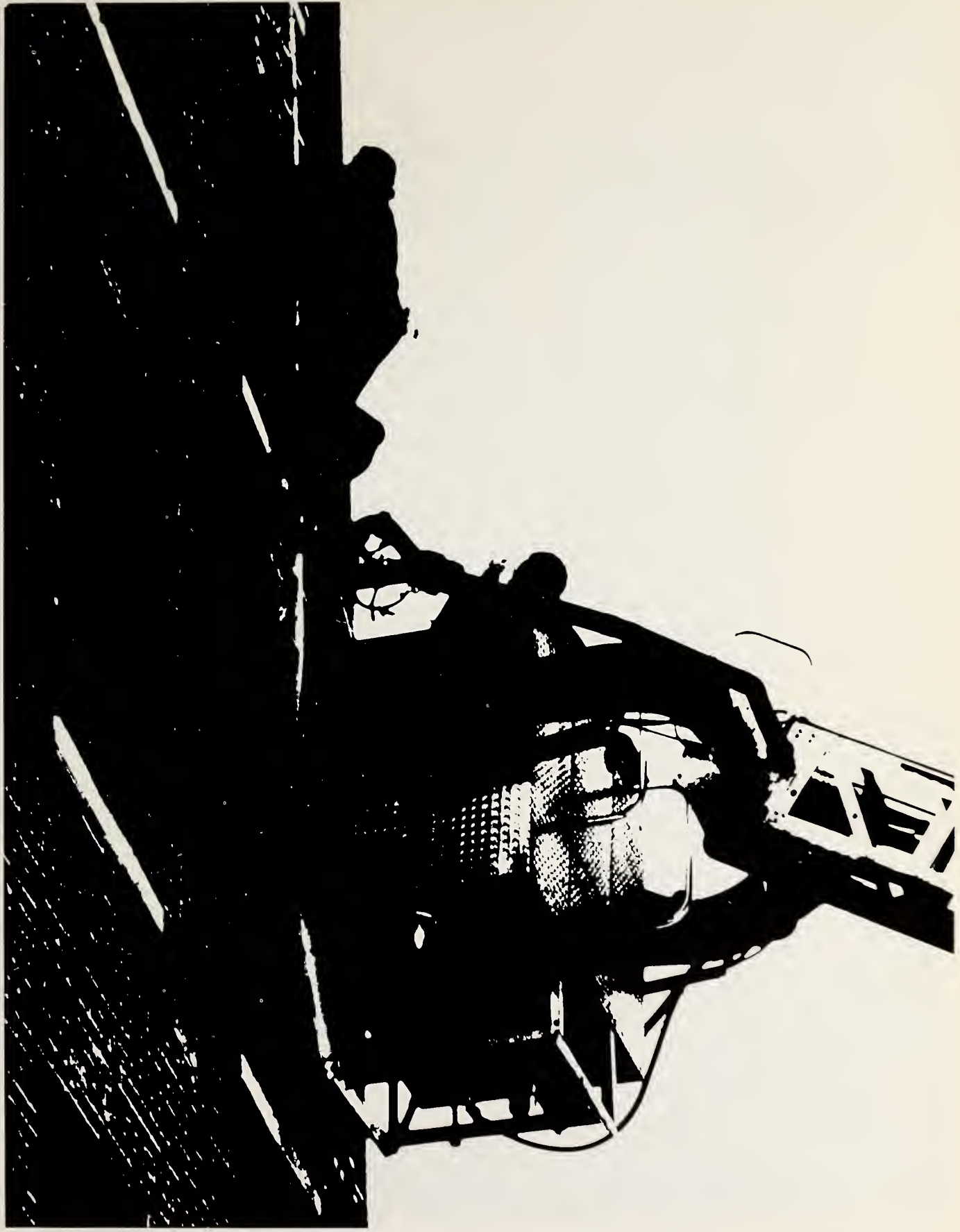


measurements of actual structural fire environments faced by the firefighter through specially instrumented firefighters' "turnout" coats. Early data indicates that the predominant heat load to the firefighter is radiative (e.g., in the form of heat rays such as infrared) rather than convective (e.g., in the form of hot gases). This suggests the firefighters' protective clothing should be more reflective to the radiation rather than more fire resistive to the convective heat.

Research sponsored at the University of Maryland, utilizing the cooperation of the six major fire departments in the Washington, D. C., metropolitan area, is beginning to measure the levels of physical abilities required for firefighters. This project includes cardiovascular endurance, muscular endurance, muscular strength, flexibility, agility and coordination and relative body composition studied under simulated field settings as well as in a stress laboratory.

Furthermore, NFPCA is building on work initiated by NBS in a study of deaths and injuries to firefighters. This work is being done under a grant to the International Association of Fire Fighters. One of the most startling findings of the study was the high incidence of fatal heart attacks. Of 101 on-duty deaths investigated, 45 percent died from heart attacks, and of those particular deaths 62 percent occurred on the fire scene. This study, as it is continued, will give insight into the most significant hazards faced by the firefighter.

Utilizing some of the existing literature and preliminary information from the above studies, a cooperative program has begun with the National Aeronautics and Space Administration (NASA) for the design, development, prototype



fabrication, test and evaluation of an improved firefighters' "personal protection" system. Primary consideration will be given to performance, weight reduction, cost and integration of the individual components into an optimum system.

Cooperation has begun with the fire services community to identify those specific portions of the protective system that offer the most cost-effective improvements. Because much of the technology for such a system already exists, the system's development and evaluation is expected to be complete by 1979 and available for industrial production in 1980. Supplementing this work is a grant awarded to the University of Texas (Arlington), which will work with the Fire Departments in the Dallas area to refine the existing design of a self-contained, life support system for the individual firefighter. This system will include breathing, cooling and communications aspects.

A study to look at the advantages and disadvantages of consolidating fire departments in several adjoining communities was undertaken by a grant to the North Hudson New Jersey Regional Council of Mayors. This study should give insight into further application of the "consolidation" concept and provide some techniques for more effective allocation of resources on the community level.

In the area of residential technology development, plans were prepared for a major program effort to upgrade residential fire protection through the use of improved fire detection devices and automatic suppression systems. The product of several research programs, discussed in the Technology Transfer section which appears later in this Report, will be utilized for this

program. A grant to the University of Wisconsin was awarded to develop sound guidelines for assisting demonstration programs related to the evaluation of fire detectors and similar devices.

Master Planning: The major activity in calendar year 1975 was a program to assist the states and their political subdivisions in planning fire prevention and control activities. Public Law 93-498 refers to this activity as "Master Planning." "Master Planning" can be defined as a plan of action, based on long term goals, to implement and operate a comprehensive system encompassing all public and private aspects of fire protection. This concept brings the "total community" into fire protection planning. The master planning procedure will provide a vehicle for community leaders to objectively determine what "risk" is acceptable in the community, to identify alternative strategies for achieving the acceptable risk, identify the cost of these alternatives, and to select those alternatives which are most suitable for that particular community.

Continuing and expanding on work initiated by the National Bureau of Standards, a grant was awarded to the City of Los Angeles to "validate" procedures that they had previously developed with the City of Mountain View, Calif. The product to be field-tested was a "step-by-step" procedures manual for use by communities in their fire protection master planning activities. Of the many communities interested in participating in the test, 10 communities were selected. The selection criteria permitted the choosing of communities that provided a variety of situations (e.g., geographical distribution, population size, type of fire ser-

vice provided, type of municipal government, potential for community consolidation of services, etc.). The 10 communities selected were:

- Azusa, Covina and West Covina, California
- Edmonds, Washington
- Fremont, California
- Ketchum, Idaho
- Richardson, Texas
- Springdale and Fayetteville, Arkansas
- Springfield, Illinois
- Tulsa, Oklahoma
- Virginia Beach, Virginia
- Washington Township, Gloucester County, New Jersey

The field validation of the procedures manual, which began in September 1975, will continue through December 1976, at which time the procedures manual will become available for nationwide distribution.

Recognizing that a single community Master Planning manual would not answer the needs of different jurisdictional responsibilities, two additional grants were awarded. The State of Illinois was awarded a grant to develop the concept of a Statewide Master Planning Manual. The State of Oklahoma was awarded a grant to develop the concept of a Rural Master Planning Manual. The manuals resulting from these two grants will not be available until late 1977 or early 1978.

As a means of bringing nationwide attention to the concept of Master Planning, a major national conference was held in Orlando, Fla., in October 1975. One of the reasons Orlando was selected was because of the exceptional fire protection "master planning" program undertaken by the developers of DISNEYWORLD,

which was a subject of discussion and inspection during the conference. The overwhelming enthusiasm for the conference was indicated by the attendance and participation. Three hundred were expected; more than 600 attended, predominantly local government representatives from every state.

The NFPCA's current master planning program is on a very short "time frame," due to the Congressional mandate to report on the establishment and effectiveness of master plans throughout the Nation by October 1978. Maintaining the field validation program on schedule is essential to assure that there has been an adequate trial period and that the report to the Congress can be as thorough and complete as possible.

Technology Transfer: In accordance with the intention of the Congress, a significant National Science Foundation program effort in fire research became the responsibility of the Department of Commerce. This program has continued through close coordination with the NBS Center for Fire Research. The activity primarily emphasized university research, involving some 20 grants. These grants included multidisciplinary programs such as the University of Utah studies on the physiological and toxicological effects of smoke; the Harvard University/Factory Mutual Research Corporation studies on fire ignition and on flame spread, smoke movement and gases; the University of California (Berkeley) studies on the application of engineering and architectural approaches to fire safety; and the University of California (Berkeley) study on Fire Safety in Urban Housing. These programs have unique value in that they bring the Nation's top experts in fields as

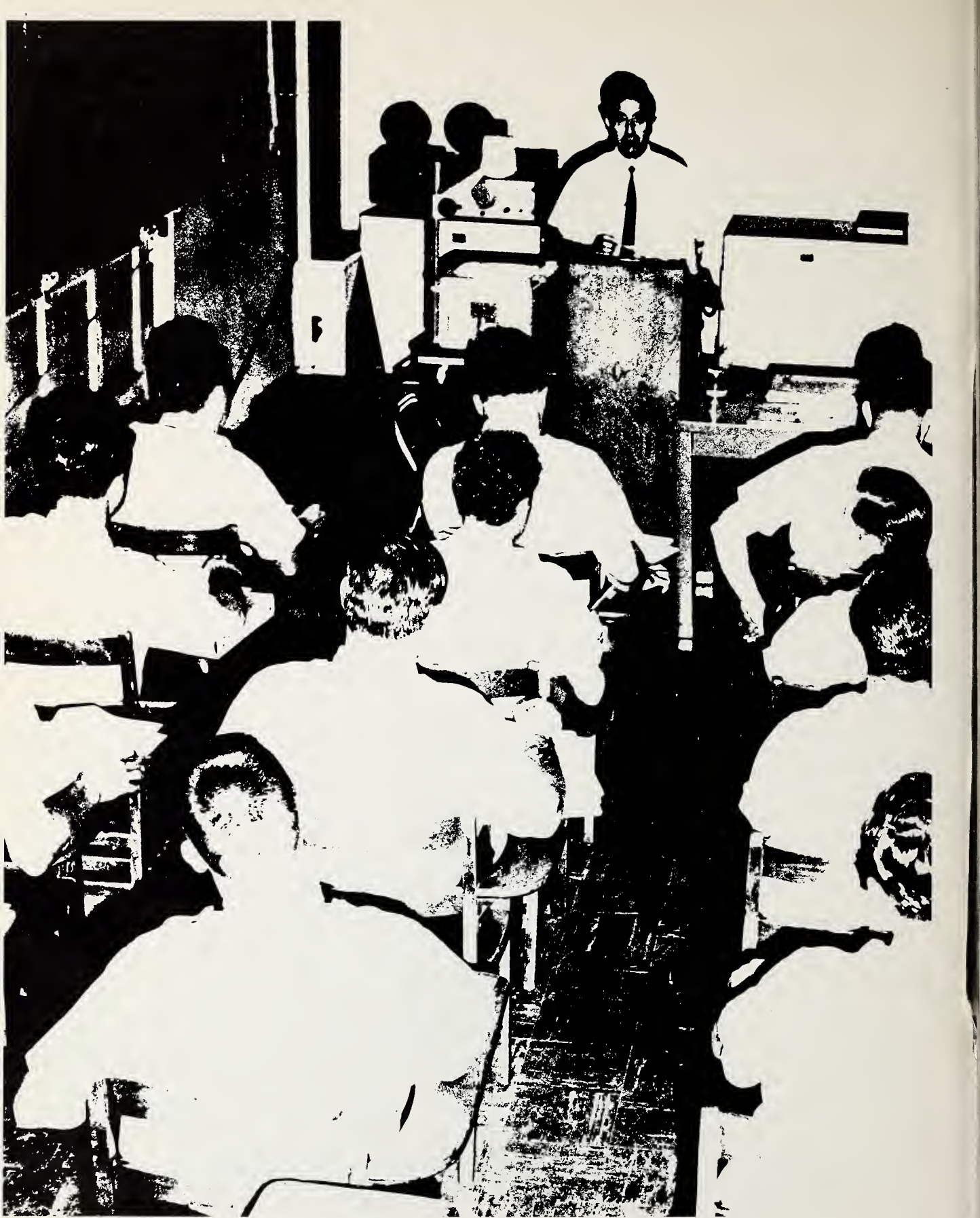
diverse as medicine and architecture together to address the problems of fire safety and provide the foundation upon which technology development programs can be initiated. For example, the Utah study is being followed closely by several Government agencies and materials suppliers because of the possible identification of lethal gases released from new types of synthetic materials. The Utah and Berkeley studies of highly flammable foams have led to consideration of new or revised regulations to control the hazards. The urban housing fire safety study should provide a rational basis to improve fire safety of materials and structures and improve the codes and standards formulation process.

An essential part of the National Fire Safety and Research Office's program is to assure the dissemination of research results. This has been accomplished through con-

ferences addressing the subjects of fire command, control and communication; teaching fire sciences; firefighting foams; and fire casualties. The office is continually interested in developing new ways to expedite the process by which results are utilized. Its attention is focusing on changing the orientation to place stronger emphasis on the multidisciplinary team concept so that research products are broader and more immediate applications will be generated and more effectively disseminated to the non-research community.

It should be noted that the major share of this former National Science Foundation research activity has (in 1976) been transferred from the National Fire Safety and Research Office to the Center for Fire Research because of the activity's closer relationship to the fundamental research activities of NBS.





Activities of the National Academy for Fire Prevention and Control

The initial efforts of the National Academy for Fire Prevention and Control were to examine fire training and education as it exists today in the United States and to discover what is needed for fire service personnel and others involved in fire prevention related activities. Following these steps, some specific initiatives were undertaken in specific subject areas, such as fire service operations analysis, instructor training and fire prevention inspection.

The Academy's charge under Public Law 93-498 is to advance the professional development of fire service personnel and others engaged in the field of fire prevention and control. To accomplish this end, Section 7 of that statute authorizes the Superintendent, among his other activities, to help develop such professionalism by education, training and assistance. The NFPCA will accomplish this through a systematic network that has, as its basis, the delivery of quality programs through a realistic effort involving state and local authorities.

The "hub" of the Academy system will include Academy headquarters programs which focus on the planning and development of courses and curricula. Specialized courses will be conducted for students at the Academy headquarters location. Agreements and cooperative working relationships with state and local training and education programs will constitute the remainder of the Academy system network. Every effort will be made to take full advantage of already existing delivery mechanisms at the state and local level to bring training and education opportunities as close to the student body as possible. Essentially, the Academy will be an outreach

program which will serve the Nation's 2.5 million firefighters by developing models which embody the latest technical knowledge for use on the state and local level.

What Exists?

Taking a look at what exists today, the National Fire Academy sponsored an education and training survey of the existing fire service programs in the country. This survey was conducted by a consortium of the National Fire Protection Association, the International Association of Fire Fighters, the International Association of Fire Chiefs and the International Society of Fire Service Instructors, under contract to the National Fire Academy.

The surveyors received information from 49 states, three territories, 246 colleges and universities and some 2,727 fire departments, representing a stratified random sampling of the estimated 30,000 fire departments in the Nation. This sample includes a vertical slice of the fire service in this country from departments protecting less than 2,500 people to those serving cities of one million or more. Forty-nine state training programs and the District of Columbia also replied.

After compiling the data, the consortium discovered that at the state level:

- o 17 states do not provide officer development training
- o 24 states do not provide fire prevention training
- o 15 states do not provide training in many specialty areas

At the local level, the data revealed that:

- o Instructors from half the departments are not certified
- o 75 percent of the departments do not require of-

ficer development training

- o 60 percent of the departments do not conduct fire inspector training
- o 95 percent of the departments do not have fire simulation capabilities
- o Less than 4 percent of the overall total budget is spent for training; only 1 percent in fully-paid departments.

A comprehensive analysis of the survey is being undertaken. But based on the data compiled, the consortium made the following findings:

1. The National Fire Academy should be established as the hub of a fire education and training network.
2. Increased education and training activities at all levels and increased uniformity in teaching methods and materials would help improve the Nation's fire services.
3. Officer development programs are not available in many locations. Those that are lack uniformity.
4. The number of qualified fire education and training instructors is limited.
5. Technical training for fire personnel in the area of fire prevention activities is, at best, minimal.
6. Technical training for arson investigators needs to be vastly improved and made more accessible.
7. Many state governments are not committed to an organization or funding for fire service education and training.
8. Fire service training in some states is fragmented, resulting in the absence of identifiable organizations or agencies through which National Academy programs can be routed.

9. Where possible, education and training programs of the National Fire Academy should be consistent with standards developed through the National Professional Qualifications Board of the Joint Council of National Fire Service Organizations.
10. The role of the two-year college needs to be defined for greater delineation of fire-related programs.
11. The development of a national system for fire education and training would benefit volunteers, paid firefighters, fire service officers, managers and administrators, and could be extended to industry, commerce, educators and the public.
12. Technical and financial assistance is needed at all levels of the fire services (state, county and local).

Fire Prevention and Control Programs in Foreign Countries

What exists in fire education and training for other countries? This question also had to be answered. To address it, the Academy undertook, on behalf of the NFPCA, a survey of efforts being made in industrialized foreign countries in the area of fire prevention and control.

Of 20 countries contacted, four did not respond. An exchange of information was begun with the 16 that replied. A background study of fire education and training in the United Kingdom was also prepared for the Academy by the former Commandant of the British Fire Staff College in Dorking. The study included a comparison of the British system with that of NFPCA and the developing Academy system.

Despite differences in history,

population, geography, government and demography, the study was of value in the planning of the NFPCA and the Academy. The British experiences with organization for education and training, curricula, programs and course structuring, performance standards, promotion examination and upward mobility procedures provided helpful insights into the problems that could arise. The study also suggested ways that the fire colleges of the United Kingdom and the National Fire Academy system could work together.

What Is Needed?

Having begun its look at what already exists, the National Fire Academy began also to identify the fire service education and training needs that are not now being addressed. In calendar year 1975, it first began this venture of needs identification through a series of professional conferences.

Five conferences were held with key officials involved with fire service training and education throughout the United States. In August 1975, a seminar was held with fire chiefs; in September, with state fire training instructors; in October, one with full-time, paid firefighters and another with college and university leaders of fire science education; and in November, with volunteer fire service representatives.

The objectives of each conference were to review and evaluate the proposed Academy system; provide input for establishing interfacing procedures for Federal, state and local systems, and college and university programs with the National Fire Academy system; aid in identifying education and training needs; and aid in identifying priorities for the Academy program development. Results of these

conferences indicated:

- The fire chiefs' conference results indicated the need for an Academy system plan. It also stressed the need for placing emphasis on fire service management training, with labor relations and collective bargaining receiving top priority.
- In the area of curriculum development, the state fire training instructor representatives recommended that all courses be based on an in-depth task analysis. Specific recommendations were suggested for the first curriculum development and courses of study. These were instructor training and fire and arson investigation. Also perceived was the need for an NFPCA clearinghouse for the gathering and distributing of training and education resources to the fire service and related fields.
- Full-time, paid firefighter representatives felt that onsite classes of the Academy should be offered for all levels of the fire service. The concept of correspondence courses was endorsed to give all firefighters an opportunity to participate in Academy programs.
- The college and university group indicated that the National Academy should supplement local and state training. They said, "The Academy should be a vehicle agency of coordination between academic education efforts and the training efforts of the state and local agencies." They further noted, "The Academy does not have to have real estate, but it would be



preferred." Again, "If it must have real estate, it should be a conference center for social and educational intercourse." The group agreed that the Academy should provide stipends for study, correspondence courses, video presentation courses and individualized learning. The major recommendation was for the development of model standard courses by peer groups for the proposed fire science programs.

- The volunteers, representing the largest single group of firefighters in the United States, felt that programs should be made available to all firefighters. Their recommendations for courses the Academy should develop and deliver leaned toward fire department management, with emphasis on command tactics.

These initial efforts to have dialogue with potential benefactors of Academy programs proved to be valuable in helping the Academy to determine what are perceived as needs and to proceed to develop these types of programs.

A sixth conference was planned for January 1976 to bring the chairmen of the first five conferences together. Their purpose was to take a coordinated look at the overall needs of fire service education and training and to meld their ideas into helping the Academy further develop its priority programs and systems.

Financial Assistance

Starting in mid-1975, a concept for implementation of the assistance program, as identified

in Section 7(f) of the Act, was started to facilitate development of a position. This resulted in a definition of scope for the initial financial assistance effort. It was determined that limited available funds would be used for grants to states in developing statewide training and education plans. These plans would serve as a base for building the delivery network within the "Academy System."

Academy Site Selection

Under a research grant, the Academy developed a preliminary guide for planning and selecting the site for the National Academy for Fire Prevention and Control. Site selection training and facility needs criteria were developed, and four categories of criteria factors were arranged in a matrix for possible use by the Site Selection Board.

Although the Academy Superintendent was not appointed in calendar year 1975, plans for his appointment and the appointment of a Site Selection Board, consisting of the Superintendent and two other members appointed by the Secretary of Commerce, were developed. These appointments were made in early 1976. The Secretary of Commerce is expected to make a final site selection by October 29, 1976.

Specific Initiatives During 1975

In addition to its research and development activities during calendar year 1975, the National Fire Academy undertook the beginning developments for curriculum and courses in specific topical areas.

Handbook on Instructional Media

The first draft of a handbook on "Using Instructional Media Effectively" for fire service training instructors was prepared in

calendar year 1975. This handbook is being reviewed by the National Fire Academy staff and selected leaders in instructional media. The final product is planned for use in an instructors' training course on "Audio Visual Aids to Instructors."

Systems Analysis of Fire Service Operations

A program begun to develop a systems analysis technique for fire service personnel was transferred from the National Bureau of Standards' Center for Fire Research to the National Fire Academy for grant management in 1975.

The study was conceived with two broad objectives in mind: to provide a common data base of information relative to firefighting operations and to provide a tool that gives management a critical look at all fire department operations.

Under Phase I of the project, the methodology was developed which would produce a common data base of information relative to firefighting operations. Phase II provided for the validation of the systems analysis approach developed under Phase I. Fourteen fire service representatives, two each from seven cities, attended school in Seattle, Washington, to learn the systems analysis approach. These representatives then returned to their home cities and put the process into practice: they filmed selected fire department operations, then analyzed the film and prepared a report.

Some of the information provided through a systems analysis of fire service operations will help to: identify human resource and performance requirements; identify workloads and provide for their equitable distribution; identify training requirements; determine entrance requirements;



establish job performance requirements; identify present and potential safety hazards; determine apparatus and equipment specifications necessary to meet human factor requirements; and identify problems and their potential solutions and provide for the sharing of this data throughout the fire service.

Under Phase III, in 1976, a 40-hour instructional package for "Firefighting Systems Requirements" will be developed and tested. The course is expected to be tested in ten locations in the United States.

Fire Prevention, Inspection and Codes

A background study for the development of education and training programs in fire prevention, inspection and

codes was undertaken in 1975. All state training directors were contacted to obtain their curricula.

As a result of this study, materials were obtained in three categories: fire prevention, fire investigation and administration of fire prevention programs.

Two major findings were discovered:

- While several states have excellent programs operating, few have developed lesson plans and course materials.
- Several states would be served best by providing programs to the state training organizations. In other states, the Academy will have to provide instructors and a delivery system for programs.

Fire Service Instructor Training

A need having been identified in fire service instructor training, in 1975 the Academy began a background study. Using the National Professional Qualification Instructor Standard (NFPA 1040) as a guideline, a sampling was conducted among state programs, community colleges and local municipal fire departments. Twenty-nine organizations and the chairman of the Fire Service Instructor Professional Standards Committee were contacted for information.

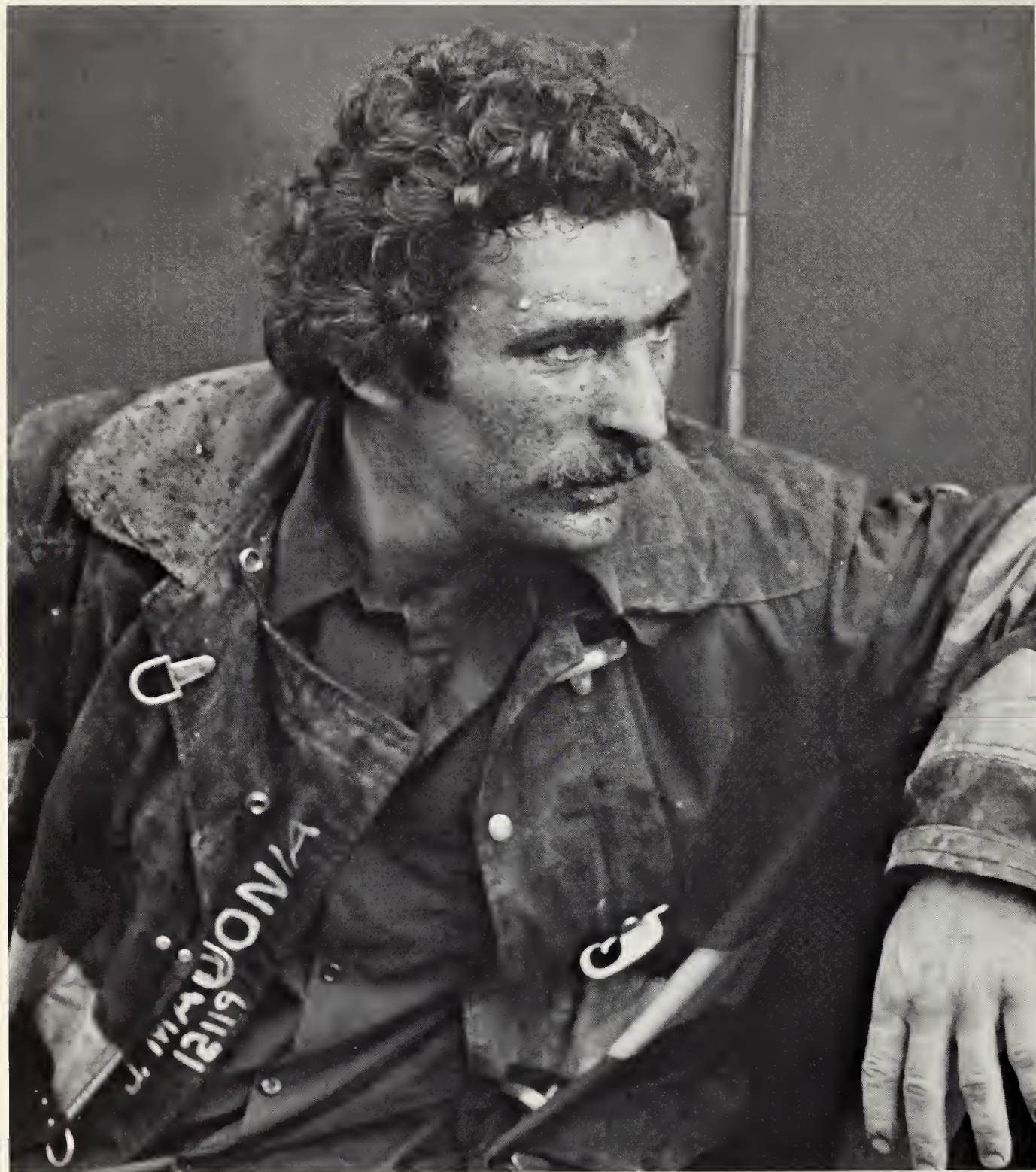
Since there is little difference in the skills required to be an effective instructor, regardless of the field, it was determined that other contacts should be made. Thirty-six agencies, such as the U. S. Civil Service Commission, the military services and others, were contacted. Nine instructor training packages were received and evaluated for future reference.

Subsequently, it was decided that a collection of experts should be brought together as soon as possible from state programs, colleges and fire departments to determine types, number and depth of programs required to train instructors. Preliminary plans were developed in 1975 to conduct this workshop at the Oklahoma State University in 1976.

Through the study, the Academy has been able to evaluate existing programs and discover a uniform methodology for developing instructional programs.

Study on Fire Safety Education for Architects, Urban Planners, Interior Designers and Builders

The Academy conducted a study to determine the state of education and training availability for architects, urban



planners, interior designers and builders on fire-safe building design.

The Academy's research discovered there is minimal formal education and training available to those entering and/or those practicing in these professional areas. A program of action was projected for the Academy to improve the education and training of architects, urban planners, interior designers and builders.

In 1975 a grant was approved for the Department of Architecture, University of California at Berkeley, California. The initial grant on this project was to cover a period of six months and allow planning for three phases in the study: a two-part course on fire safety in buildings, a graduate course on fire safety in building architecture, and a two-and-a half day conference on fire safety education for architects, urban planners, interior designers and builders—all three to be held in early 1976.

In addition, the grant proposes a one-week design experience to be given by the University as a pilot project for the Academy during the summer of 1976. This course is to involve the design of alternative solutions for fire safety in existing buildings or projects.

The expected results of the grant will be preliminary curriculum and course outlines which the National Fire Academy can offer professionals who need this type of education.

Fire and Arson Investigation

Since the problem of arson seems to be climbing throughout the United States, it is of great interest to all involved in fire prevention and control.

The profit motive seems to be paramount in the crime of arson. The intentional burning

of buildings to receive a quick insurance payoff appears to be commonplace. Issues have been raised as to how we might reduce the economic incentive in this area of criminal activity. What is the real capability of the insurance industry to resist payment of claims in suspicious fire? Should insurance claim payments be limited to replacement of burned property rather than cash settlements in cases of suspicious fires?

In 1975 the National Fire Academy began a special effort to zero in on a plan of action for a coordinated attack on arson.

A two-phase forum on arson detection and investigation was planned for early 1976 through a grant to Battelle Memorial Institute, Columbus, Ohio. Experts from the fire services, police services, law enforcement, arson investigation, the insurance industry and the financial industry met in December 1975 for the purpose of identifying the professional and educational goals of the various groups involved in attacking the arson problem.

The group first identified their common objectives and training and information requirements, and began drawing up an action program for meeting these requirements. Among the common objectives identified were the desire to make arson a part-one crime in the Federal Bureau of Investigation's Uniform Crime Report, the agreement that fire and arson investigation personnel need more and better training, the feeling that the public needs better awareness about the crime of arson, and the need for a plan of action against arson led by the NFPCA and backed by each of the separate groups involved in the workshop.

A second seminar was planned for early 1976 to consolidate the group's findings, reach a consensus and put together a

national report that clearly defines the problems and the recommended solutions. That report, when issued in 1976, will launch the Academy's training efforts on arson investigation and the NFPCA's national attack against this crime.





Assistance To Nation's Fire Services

As indicated in the Research and Technology section of this report, the NFPCA has placed major emphasis on improving the firefighter's protective clothing, the equipment he uses, and the efficiency with which he provides his public service. In order to have the necessary foundation to impact on these areas, the agency has become involved in studies to help understand the environment of the firefighter and his ability to withstand the stresses. Projects have been initiated which are directly aimed at improving the firefighter's safety in a fire environment, both through better equipment and better standards for procuring this equipment.

Continuing dialogue with the Nation's fire services through such established organizations as the International Association of Fire Chiefs, the International Association of Fire Fighters, the Joint Council of National Fire Services Organizations and others, provides essential interaction and opportunities for significant input to, and evaluation of, NFPCA programs to assist the fire services.

The NFPCA's Master Planning efforts have direct access to, and programmatic support from, the fire services. The Master Planning concept, supported by the fire services, provides the total community with an opportunity to determine what its fire protection level should be.

Before President Ford signed the Federal Fire Prevention and Control Act, the Center for Fire Research was conducting a program for fire services technology. One of the objectives of the program was the development of performance criteria for equipment intended for use by the Nation's fire services. During 1975, the National Fire Protection Association

adopted two standards for firefighters' equipment based on this research. The new NFPA Standard on Protective Clothing for Structural Fire Fighting is based on the design criteria developed from Commerce Department programs. This is the first standard ever issued by a national organization for a firefighter's personal equipment, and there is now a new standard on Fire Department Ground Ladders based on recommendations contained in a Center report. In addition, under contract, research began on firefighters' helmets to determine criteria for a standard to provide a reasonable level of protection for firefighters. There is no such standard at present.

Reimbursement for Costs in Fighting Fires on Property Under Federal Jurisdiction

Section 11 of the Act authorizes reimbursement to fire services for the costs they incur in fighting fires on property which is under the jurisdiction of the United States. Prior to the enactment of this provision, the Comptroller General had ruled that, in the absence of express Congressional action, such reimburse-

ment was not available to fire services which had the legal obligation to provide protection even though the Federal Government had paid no taxes.

Before claims under Section 11 could be processed in a consistent and a reasonable manner, some complex legal issues had to be addressed. For example, what is the intended scope of property which is under the jurisdiction of the United States, and what effect does Section 11 have on pre-existing mutual aid or contractual arrangements for the provision of fire protection? Most of the efforts expended relative to Section 11 were for isolating, researching and concluding such issues.

Draft regulations incorporating those conclusions were prepared for review and comment by other appropriate Federal agencies. Final reviews and implementation of the claims program are expected to be accomplished by January 1, 1977.

In addition, Section 7(i) of the Act provides for major sums of financial assistance to the fire service, including stipends to students and student loans. During calendar year 1975 funds were not available and this assistance program had not begun.



Your clothing can burn!

**This 3
year old
boy's**



People, their behavior and their lack of fire safety knowledge, are major contributing factors to the Nation's fire problem. The design and delivery of effective public fire safety programs are a major component of NFPCA's effort to reduce fire losses.

Historically, scientific measures have not been applied to public education programs. It has been difficult to uncover evidence of fires which did not occur, or deaths or injuries that were avoided as a result of a successful public education program.

However, during 1975, key elements of successful programs were defined and a system for delivering useful information and techniques to those who can use them was initiated.

The Public Education Office conducted an exhaustive multidisciplinary study of the state-of-the-art of public fire education unlike any ever attempted. Research was drawn from the fields of fire protection, fire prevention, public health, education, communications, psychology, child development, gerontology, urban dynamics and statistics. Nearly 300 pieces of literature were received and more than 75 individuals were interviewed during the initial research period.

Interviews were conducted with professionals in the fire field, and conversations were held with many people about their day-to-day experiences with fire. The Office talked with diverse experts such as fire marshals and psychologists, social science researchers and public health officials. The staff interviewed an equally wide range of people from the ages of four to 80. Firefighters, doctors, parents, children, government officials, nursing home directors and teachers all con-

tributed to the study. From this comprehensive research, NFPCA has assembled most of what is known about public fire education together with the key elements of successful programs. A comprehensive bibliography of literature on the subject has also been developed.

People are part of the "chain of events" which result in fire deaths, injuries or losses. Studies show that people can be educated to have control over some of the elements in that chain. The challenge is to identify those controllable elements in a community and to identify strategies which will cause the chain to be broken. It was learned that a systematic procedure was needed by local communities to help them develop and deliver public education strategies which are specifically aimed at unique local situations.

Community Fire Education Programs

Based upon comprehensive research, the development of a systematic community fire education planning procedure was initiated. This procedure closely parallels and directly relates to the Community Fire Protection Master Planning effort of NFPCA. When completed, the fire education planning procedure will be made available to local communities to help them define their unique "chains of events" which lead to fire losses. It also will aid them in identifying those elements of the chains which can be influenced by public education, selecting tested programs and resources which will work and in evaluating the results. It is felt that this community fire education planning procedure will act as an important vehicle for bringing the results of NFPCA's research into the hands of local community

leaders for implementation.

In studying existing public education programs, two major elements were discovered to correlate with success. First, successful programs are community-based and involve strong local participation. People cannot be passive targets of well-intentioned efforts. They must be involved. Second, many programs are too complex in that they "overload" people with information. When the educational message is kept extremely simple and clear, people remember it and respond properly.

Research has also uncovered a number of successful programs and approaches to public education. In Louisiana a study of high risk neighborhoods by Louisiana State University sociologists and the New Orleans Fire Department demonstrated that methods used successfully in rural communities to reduce fire losses by over 55 percent could be applied to urban areas. The key to this study was to teach neighborhood opinion leaders about the fire hazards in their areas. They, in turn, educate the community.

Project RIDFIRE, a national survey of home safety inspection programs, was conducted in 1975 to determine key components of successful programs. In Edmonds, Washington, a home safety program was responsible for a 67-percent reduction in fire losses in one year. This program trained women and fire department inspectors to show homeowners how to remove fire hazards. The program is being packaged for national distribution.

Rural fire protection requires unique approaches for public fire safety. In addition to standard forms of hazard removal, rural inhabitants must be aware of simple firefighting procedures that can be taken

until the fire department can arrive. A model program was identified and products of this program will be tested in rural areas and then disseminated on a national scale.

Smoke detectors are becoming a standard part of residential fire protection. The concern of the Public Education Office is that people may not properly install and maintain the detectors, or they may not have a practiced home escape plan. There are several instances in which people thought their detectors were protecting them, yet when fire broke out in their homes, the people died. Either the detector did not function or the people did not get out because they had not designed or practiced an escape plan and were thus unable to react properly. Four people in Arlington, Mass., perished despite the fact that detectors awoke them with time to spare. The Public Education Office, in cooperation with the National Bureau of Standards, the Consumer Product Safety Commission and the NFPCA Research

and Technology Office, initiated the development of a comprehensive program for educating the public about smoke detector installation, maintenance and escape planning. Written materials, media messages and supporting programs for citizen groups and fire service personnel will provide the information and the assistance to homeowners to properly install and maintain detectors.

Fire Education Resource Exchange System

Unlike other public education or social action programs which have been attempted at the Federal level, fire prevention education has a built-in network of fire prevention officers to deliver programs. Similarly, many national service organizations, 4-H, National Safety Council, Boy Scouts, civic groups and consumer groups, currently have some form of fire program. On the whole, these programs are fragmented and utilize techniques which are outmoded and ineffective.

Studies have revealed the great need for exchange of information among public fire education specialists around the country. The action people on the local level are looking for new ideas and are anxious to share their ideas with others. It is not uncommon to receive requests for technical assistance from a city and then to refer that inquiry to a successful program in a neighboring city or state. Therefore, a pressing need was to establish a vehicle by which knowledge about existing programs and resources could be shared among fire prevention officers actively engaged in public education programs. The Fire Education Resource Exchange System will provide on a national and state level, ready access to educational materials, programs and resource people.

A series of regional public education mini-conferences were planned for Massachusetts, Delaware, Oklahoma, Utah, California and Illinois as a result of a pilot conference held at the University of Maryland. The pilot conference was aimed at bringing local public education specialists together to exchange information and ideas. That mini-conference, which brought together the originators of 20 successful programs from across the country, resulted in an overwhelming response from the participants in the form of requests for regional conferences that would bring these presentations to other parts of the Nation.

During 1975, the Resource Exchange System staff compiled and reviewed fire education materials, media packages and curriculum guides for all grade levels. Information on these materials and programs will be made available to public fire educators through resource directories.





Fire Safety Effectiveness Statements

No specific program activity was undertaken for the development of Fire Safety Effectiveness Statements. Although consideration has been given to this subject, staff resource limitations did not permit a program effort. Program planning documents indicate Fiscal Year 1978 as the earliest date that some resources could be devoted to a substantial effort in this area.

Problems Confronting the Administration of the Act

Because the programs in implementation of the Act were in their formative stages of planning and development during the period covered by this Report, no outstanding problems were conclusively identified.

Early in the development of the Administration, some basic problems existed between the administration of Section 18 of the Act and other sections relating to fire research and technology. Interpretations of various fire research-related sections of the Act led to questions as to division of functional responsibility between the Center for Fire Research and those of the National Fire Administration. Through a mutual joint agreement between the Administrator and the Assistant Secretary for Science and Technology, these questions have been resolved and the implementation of the Fire Research sections of the Act is now running smoothly.



Additional Legislation

Because the programs in implementation of the Act were in their formative stages of planning and development during the period covered by this Report, the need for additional legislation was not conclusively determined.

However, the need to support state and local education and training is critical. The fulfillment of this need may require additional legislation in the form of block grant revenue sharing. Also, additional legislation may be needed for acquiring a site for the National Fire Academy.

Many Congressional inquiries have been received for as-

sistance in areas clearly not covered by the Act such as financial assistance to fire departments in purchasing equipment, building facilities and conducting fire service operations. It should also be noted that there has been Federal legislation introduced in the Congress during the past year for which authority appears to exist under Public Law 93-498. The NFPCA makes no recommendations for additional legislation at this time.

Review of Fire and Building Codes

Liaison continued with code authorities on an informal basis; however, limited personnel resources prohibited

the mounting of a program effort which must be delayed in deference to higher program priorities. Points of necessary contact and interaction have been identified, such as the several model code bodies in this country, the National Conference of States on Building Codes and Standards, research groups that have identified problems in code administration or authority overlaps, other Federal agencies that are beginning to address the regulatory impact question at the national level, and those Federal, state and local agencies.

In Fiscal Year 1976, the Administration will assign resources and begin a program to review fire and building codes and regulations.

Providing data, recommendations and consultation to national and local code groups is a continuing activity of the Center for Fire Research. The year 1975 was an especially important one for work on NFPA's Life Safety Code. The National Fire Protection Association's Life Safety Code sets recommended minimum standards for fire safety in all types of occupancies including hospitals, schools and residences. The code is adopted by agencies, states and government bodies. During 1975, the Center for Fire Research staff made substantial contributions to rewriting the residential portion of the Code. The new version provides several alternatives for achieving the recommended level of fire safety. This improves upon the old version which allowed only one means for complying with the standard. The new standard allows building designers to choose the manner in which they want to meet the code. In addition, it provides greater flexibility and reduces the cost for renovation of existing buildings.

Other Items of Interest

Public Safety Awards

Section 15 of the Act creates two awards to be given for recognition of unusual service rendered by public safety officers (firefighters, law enforcement officers, including corrections or court officers and civil defense officers). These awards are the President's Award for Outstanding Public Safety Service and the Secretary's Award for Distinguished Public Safety Service.

The Secretary of Commerce, the Secretary of Defense and the Attorney General are assigned responsibilities under Section 15 and are directed to jointly issue such regulations as may be necessary to carry out the Section. Under the auspices of NFPCA, representatives of the three Executive Departments were called together and consulted as a joint working group for the purposes of isolating and concluding substantive issues and procedural questions involved in the promulgation of regulations to implement Section 15. The Chief Counsel of NFPCA, who was the chairman of the working group, drafted the regulations and transmitted them to the working group members for comment. Those comments are now being incorporated into final regulations for submission to the Secretary of Commerce, the Secretary of Defense and the Attorney General for formal approval. The "public safety awards" program is expected to be ready for implementation in late calendar year 1976.

Interagency Coordination

There are a multitude of Federal agencies which commit

resources to fire safety activities. These activities range from the operation of full-scale Federal fire departments to fire-safety design in Federal buildings and sophisticated extra-terrestrial space vehicles. In view of an observed need and the mandates of Section 21 of the Act, a minimal effort was executed by the NFPCA during calendar year 1975 to encourage coordination between these Federal fire safety activities and to build a linkage between the NFPCA and the "Federal fire community."

The NFPCA has established liaison with approximately 70 Federal agencies having fire safety interests. In addition, the Federal Government operates approximately 670 fire departments, including some 30,000 full-time, paid firefighters. These Federal agencies and organizations have the ominous responsibility of protecting hundreds of billions of dollars worth of Federal property and millions of lives worldwide from the devastation of fire. In addition, many sensitive or highly

critical Government operations are subject to being crippled by accidental or malicious fires, and fire prevention and control in these instances are necessary for the preservation of the national security and well-being.

The purpose of the Interagency Coordination effort is to help Federal agencies share information with each other and hopefully avoid some duplication. In addition, the NFPCA intends to provide the same kind of programmatic help to the Federal community to the degree and in the manner prescribed by the Act for the NFPCA to help state and local governments. Initial plans were laid in calendar year 1975 to institute a fire incident reporting system to enable the Administration to collect, compile and analyze Federal fire statistics in a manner compatible with the Fire Data Center statistics from state and local governments. There is currently no comprehensive and standardized Federal collection point for the analysis and



measurement of Federal fire losses. Also, plans were begun to examine both the utility of fire protection master planning within the Federal community and the comparative needs of the Federal fire service with respect to training and education.

Consumer Product Safety Commission

The NFPCA has held several meetings with the Consumer Product Safety Commission concerning their requirements for fire information to support their program areas. It was agreed that the Data Center's fire incident reporting system would prepare reports for the Consumer Product Safety Commission on an "as needed" basis.

The agency also agreed to perform in-depth fire investigations for products which the Commission considered hazardous, e.g., aluminum wire, plastic case goods, space heaters. The Commission furnished NFPCA with the list of their priority items for study. A reporting network is expected to be initiated in 1976 which will respond to the Commission's needs, although personnel limitations will not enable fulfillment of many requirements.

Review of Fire Services

As prescribed by the Federal Fire Prevention and Control Act of 1974, fire prevention and control is and should remain a state and local responsibility. This means that the action is on the state and local level with regard to programs which impact on fire losses. Much of the burden for these state and local actions

rests with the fire services.

The fire services in America range from fire departments composed of a handful of volunteers in a rural area to large urban fire departments employing thousands of full-time, paid firefighters. We have no complete directory of American fire departments; and, indeed, the total number of fire departments in the United States is not known. The best estimates indicate that there are on the order of 30,000 individual fire departments in the United States which are providing fire prevention and control services to the general public. In the aggregate, these fire departments represent a manpower resource of some 2.5 million personnel. Of the total number of fire departments and fire personnel, it is estimated that some 80 - 90 percent are volunteer. In addition to these fire departments which serve the public at large, there are other fire departments which serve the Federal community and the private sector. A tremendous number of Federal installations, businesses and industrial complexes utilize fire brigades in substantial numbers and of substantial quality.

Overall, the fire service needs many improvements, which fire personnel themselves would be the first to admit. Our fire departments have been protecting America for 200 years. Generally, the fire service is very tradition oriented, and major changes will not come easily nor quickly. The fire service is not looking for a dictatorial Federal fire bureaucracy. But the fire service is interested in improving its ability to prevent and control fire, and it is anxious to receive quality help. The fire service is looking to the NFPCA to bring together the expertise which the fire service cannot afford. It is looking for output from the

NFPCA in a form which is relevant to state and local problems and in a form which can be readily grasped and utilized by local fire service personnel.

It is also interesting to note that recent years have shown a burgeoning activity within the fire service in the form of self-help. The fire service itself is extremely interested in further developing professionalism within its own ranks. Through the Joint Council of National Fire Service Organizations, a series of Professional Qualifications Standards is being developed on a peer group basis. Professional Performance Standards are being written for firefighting personnel as well as fire prevention personnel, fire service instructors and fire officers. The emphasis on fire prevention is particularly encouraging. The National Commission on Fire Prevention and Control and, indeed, the Congress in passing Public Law 93-498, indicated needed improvements in the fire service with respect to emphasis on fire prevention. Fire prevention largely occurs on the local level, and fire service personnel are key leaders in this effort. The development of performance quality in the fields of fire inspection, fire investigation and public fire education, is being spearheaded on a peer group basis within the fire service itself.

This rather subjective review and evaluation of the Nation's fire services brings to the surface strong indications that we are breaking away from our traditional approach to fire safety and that the millions of dedicated fire service personnel in the United States are meeting the challenge of the future. This activity within the fire service is reassuring and is an indication that our goal of substantially reducing the Nation's fire losses is achievable.



Appendix

United States of America
Department of Commerce

Department Organization Order Series

Department Organization Order
25-6B

Date of Issuance
January 29, 1976

Effective Date
January 29, 1976

Subject

**National
Fire Prevention
and Control
Administration**

Section 1. Purpose

.01 This order prescribes the organization and assignment of functions within the National Fire Prevention and Control Administration (the "NFPCA"). The scope of authority and functions of the NFPCA are set forth in Department Organization Order 25-6A.

.02 This revision provides for the Deputy Administrator to perform the duties of the Administrator in the latter's absence (paragraph 3.02); retitles the Office of the Legal Adviser as the Office of the Chief Counsel, and gives the Chief Counsel responsibility for administering the claims program prescribed in Section 11 of the Federal Fire Prevention and Control Act of 1974 (paragraph 3.03); establishes the Office of Administration and the Office of Information Services within the Office of the Administrator (paragraphs 3.04 and 3.05); clarifies the function of the Public Education Office (Section 5.); and clarifies the NBS consultation and coordination functions of the Associate Administrator for the National Fire Safety and Research Office (Section 7.).

Section 2. Organization Structure

The principal organization structure and line of authority shall be as depicted in the organization chart.

Section 3. Office of the Administrator

.01 The *Administrator*, NFPCA, formulates policies and programs for achieving the objectives of NFPCA, directs the execution of these programs, and assigns other responsibilities as required.

.02 The *Deputy Administrator* assists the Administrator in formulating policies and programs and in managing the NFPCA, and shall act as Administrator during the absence or disability of the Administrator or in the event of a vacancy in the Office of the Administrator.

.03 The *Office of the Chief Counsel* shall provide legal services to all components of NFPCA, subject to the overall authority of the Department's General Counsel as provided in Department Organization Order 10-6. The Chief Counsel shall administer the claims program prescribed by Section 11 of the Federal Fire Prevention and Control Act of 1974 (15 U.S.C. 2201 et seq., 278f.) (the "Act"), and shall perform such other functions as the Administrator shall assign.

.04 The *Office of Administration* shall develop and maintain the internal administrative management control systems of the NFPCA; perform budget formulation and management functions; perform evaluative, analytic, and developmental work on administrative systems and procedures; arrange for and facilitate the provision of administrative services from the Department as required; and perform such other administrative management functions as the Administrator shall assign.

.05 The *Office of Information Services* shall coordinate nonprogrammatic information activities within NFPCA; maintain liaison with the communications media; advise the Administrator and other NFPCA officials on all news media, public communication and information policies and techniques; coordinate NFPCA conference activities; and perform such other functions as the Administrator shall assign. These information activities will be carried out in collaboration with the Departmental Office of Communications.

Section 4. National Academy for Fire Prevention And Control

01. The National Academy for Fire Prevention and Control (the "Academy"), hereby established as prescribed by Section 7 (a) of the Act, shall be headed by a Superintendent (appointed by the Secretary of Commerce) who shall report and be subject to the direction of the Administrator.

.02 The Academy shall:

- a. Advance the professional development of fire service personnel and of other persons engaged in fire prevention and control activities;
- b. Encourage new programs and recommend strengthening of existing programs of education and training at State and local levels and through private institutions by providing assistance as prescribed by the Act; and
- c. Perform other functions as prescribed by the Act or as the Administrator shall assign.

Section 5. Public Education Office

The Public Education Office, headed by an Associate Administrator who shall report and be responsible to the Administrator, shall:

- a. Educate the public and overcome public indifference to fire and fire prevention;
- b. Provide specialized fire education information to those groups particularly vulnerable to fire hazards;
- c. Conduct research, testing, and experimentation to determine the most effective means of public education; and
- d. Perform such other functions as the Administrator shall assign.

Section 6. National Fire Data Center

The National Fire Data Center, headed by an Associate Administrator who shall report and be responsible to the Administrator, shall:

- a. Operate directly, or through contracts or grants, a comprehensive system for the selection, analysis, publication, and dissemination of information related to the prevention, occurrence, control, and results of fires of all types;
- b. Encourage and assist State, local and other agencies, public and private, in developing and reporting information;
- c. Develop standardized data reporting methods;
- d. Make full use of existing data sources;
- e. Effect maximum dissemination of the data collected and developed by the Center in appropriate forms to Federal agencies, State and local governments, private organizations, industry, business, and other interested parties; and
- f. Perform other functions as the Administrator shall assign.

Section 7. National Fire Safety and Research Office

.01 The National Fire Safety and Research Office, headed by an Associate Administrator who shall report and be responsible to the Administrator, shall:

- a. Plan and direct a continuous program of development, testing, and evaluation of equipment for use by the Nation's fire, rescue, and civil defense services;
- b. Encourage and assist local jurisdictions in the development of master plans for fire prevention and control;
- c. Review, evaluate, and suggest improvements in State and local fire prevention codes, building codes and regulations;
- d. Administer the Fire Safety Effectiveness Statement Program as described in the Act;
- e. Upon request, assist the Consumer Product Safety Commission in the development of fire safety standards or codes for consumer products;
- f. Directly, or through contracts or grants, conduct research as authorized; conduct studies of the operations and management aspects of fire services and of the productivity and efficiency of fire service personnel; sponsor demonstration projects to introduce and encourage acceptance of new

technology, standards, operating methods, command techniques, and management systems by fire services; and measure and evaluate, on a cost-benefit basis, the effectiveness of the programs of individual fire services;

g. Provide assistance to the National Institutes of Health in establishing an expanded program of research on burns, treatment of burn injuries, and rehabilitation of victims of fires; and

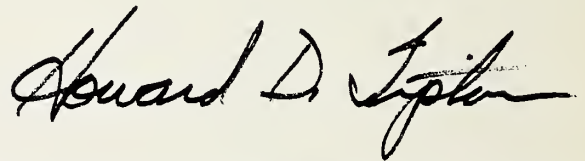
h. Perform other functions as assigned by the Administrator.

.02 The Associate Administrator shall be responsible for consulting and coordinating with the National Bureau of Standards Fire Research Center on the conduct of basic and applied research as prescribed in the Act.

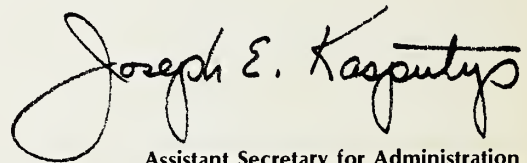
Section 8. Effect on Other Orders

This order supersedes Department Organization Order 25-6B of April 28, 1975.

Approved:

A handwritten signature in black ink, reading "Howard D. Tipler". The signature is fluid and cursive, with the first name "Howard" being the most prominent.

Administrator, National Fire Prevention and Control Administration

A handwritten signature in black ink, reading "Joseph E. Kasputys". The signature is fluid and cursive, with the last name "Kasputys" being the most prominent.

Assistant Secretary for Administration

Several photographs in this Report appear courtesy of: The New York City Fire Department; the District of Columbia's Fire Department Training School, the Prince George's County Fire Department; and the University of Maryland

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